

**Notice of Allowability****Application No.**

09/929,037

**Applicant(s)**

KOIZUMI ET AL.

**Examiner**

Carramah J. Quiett

**Art Unit**

2622

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERIT IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/07/2009.
2. ☒ The allowed claim(s) is/are 5, 7, 8, 17-20, 26 and 27.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20091217.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.



***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/07/2009 has been entered.

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Donald Heckenberg, Jr. on December 17, 2009.

The application has been amended as follows:

**CLAIMS 9-16** Please **CANCEL**.

**CLAIMS 21-24** Please **CANCEL**.

***Allowable Subject Matter***

3. **Claims 5, 7-8, 17-20, 26, and 27** (renumbered claims 1-9, respectively) are **allowed**.
4. The following is an examiner's statement of reasons for allowance:

**Claim 5** is allowed because the prior art does not teach or fairly suggest an image pickup device comprising: a drive circuit controlling said transfer switch, wherein the drive circuit supplies said transfer switch with a signal of a first level to set said transfer switch to be in an OFF period by maintaining the signal at the first level for the OFF period, and supplies said transfer switch with a signal of a second level to set said transfer switch to be in an ON period by maintaining the signal at the second level for the ON period, such that a fall speed of changing from the second level to the first level is slower than a rise speed of changing from the first level to the second level, in combination with the other claimed elements.

**Claims 7-8** are allowed because they depend from claim 5.

**Claim 17** is allowed because the prior art does not teach or fairly suggest an image pickup device comprising: a drive circuit controlling said transfer switch, wherein the drive circuit supplies said transfer switch with a signal of a first level to set said transfer switch to be in an OFF period by maintaining the signal at the first level for the OFF period, and supplies said transfer switch with a signal of a second level to set said transfer switch to be in an ON period by maintaining the signal at the second level for the ON period, such that a fall speed of changing from the second level to the first level is slower than 10 V/ $\mu$ sec, in combination with the other claimed elements.

**Claims 18-20** are allowed because they depend from claim 17.

**Claim 26** is allowed because the prior art does not teach or fairly suggest a drive method for an image pickup device, the method comprising: a step of supplying said transfer switch with a signal of a first level to set said transfer switch to be in an OFF period by maintaining the signal at the first level for the OFF period, and supplying said transfer switch with a signal of a

second level to set said transfer switch to be in an ON period by maintaining the signal at the second level for the ON period, such that a fall speed of changing from the second level to the first level is slower than a rise speed of changing from the first level to the second level, in combination with the other claimed elements.

**Claim 27** is allowed because the prior art does not teach or fairly suggest a drive method for an image pickup device, the method comprising: a step of supplying said transfer switch with a signal of a first level to set said transfer switch to be in an OFF period by maintaining the signal at the first level for the OFF period, and supplying said transfer switch with a signal of a second level to set said transfer switch to be in an ON period by maintaining the signal at the second level for the ON period, such that a fall speed of changing from the second level to the first level is slower than  $10\text{ V}/\mu\text{sec}$ , in combination with the other claimed elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fossum (US Pat. 6667768)

Photodiode-type pixel for global electronic shutter and reduced lag.

Koizumi et al. (US Pat. 7015964)

A solid-state image pickup device comprising means for resetting the photoelectric converter by opening the transfer switch under a condition of holding the voltage

	of the input terminal to a fixed high level before storing the signal.
Iizuka et al. (US Pat. 7271835)	Solid-state image pickup device and device driving control method for solid-state image pickup.
Fossum (US Pat. 20040041077)	High dynamic range cascaded integration pixel cell and method of operation.
Kochi et al. (US Pat. 6510193)	Charge transfer device and a semiconductor circuit including the device.
Kochi et al. (US Pat. 7110030)	A solid state image pickup apparatus comprising at least a potential setting circuit for generating a voltage different from the power supply voltage, wherein the output of the potential setting circuit is applied as a pulse to the gate of the transfer switch.
Cazaux et al. (US Pat. 7067792)	A device and a method for controlling a photosensitive cell including a photodiode adapted to discharging into a read node via a MOS transfer transistor, the device being adapted to providing a signal for controlling the gate of the MOS transfer transistor to a first level for which the MOS transfer transistor is off or to a second level for which the MOS transfer transistor is on, including means for providing a transition control signal between the second level and the first level of determined average slope.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571)272-7316.

The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David L. Ometz/  
Supervisory Patent Examiner, Art Unit  
2622

C. J. Q./  
Examiner, Art Unit 2622  
December 17, 2009